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Copyright Law Constraints on the Transfer of Certain Federal Computer Software With Commercial Applications

Statement of
Keith O. Fultz, Director, Planning & Reporting
Resources, Community, and Economic Development
Division

Before the
Subcommittee on Courts, Intellectual Property
and the Administration of Justice
Committee on the Judiciary
House of Representatives

Mr. Chairman and Members of the Subcommittee:

I am pleased to present our views on the copyright law's prohibition on copyrighting the federal government's computer software. My statement today is based on our ongoing work for this Subcommittee. At your request, we are examining (1) federal agencies' efforts to comply with the prohibition on copyrighting works of the government, (2) the extent to which copyright law has constrained the transfer of federal software, and (3) the pros and cons of amending copyright law to allow federal agencies to copyright computer software. This review follows up on our March 1988 report, in which we identified copyright law as a constraint to the transfer of federal computer software to U.S. businesses.[1]

I would like to summarize the results of our most recent work, which we will include in a report to this Subcommittee soon. We found no evidence that federal agencies are copyrighting works of the federal government. However, at five federal agencies,[2] senior officials believe their efforts to transfer certain computer software with potential commercial applications to U.S. businesses have been significantly constrained because the government cannot copyright and exclusively license federal software. They estimate that this software could represent as much as 10 percent of all the software developed at their laboratories. In particular, federal laboratories are having only limited success in encouraging U.S. businesses to collaborate on developing computer software, through cooperative R&D agreements, because of uncertainties over the

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[1]Technology Transfer: Constraints Perceived by Federal Laboratory and Agency Officials (GAO/RCED-88-116BR, Mar. 4, 1988).

[2]These agencies--the Department of Agriculture, the Department of Commerce, the Department of Defense, the National Aeronautics and Space Administration, and the National Institutes of Health--funded about 88 percent of the research and development performed at all government-operated laboratories in fiscal year 1989.

extent of protection they can offer businesses for jointly developed works.

According to agency officials and executives from businesses that have considered commercializing federal software, having the authority to copyright and grant exclusive licenses would stimulate the transfer of federal software with commercial applications by providing businesses with protection for their investments. Royalty-sharing authority would also, in their view, provide federal researchers with an incentive to further develop and document the software. However, officials of the Information Industry Association, which represents the business information community, expressed concern that providing copyright and licensing authority for software could, among other things, limit public access to federal scientific and demographic databases that software provides.

BACKGROUND

Copyrights protect literary and artistic expression by giving the author, for a limited period of time, the exclusive right, among other things, to reproduce and sell copies of the copyrighted work and prepare derivative works. But under 17 U.S.C. 105, the U.S. government is prohibited from copyrighting any of its works, including technical publications, computer software, and databases. The law's legislative history states that this prohibition is intended to place all works of the federal government in the public domain. Most federal computer software is generated by federal agencies' laboratories as part of their research mission. This software is primarily distributed through the National Technical Information Service (NTIS) and other software distribution centers operated by the Department of Energy (DOE) and the National Aeronautics and Space Administration (NASA).

With the rising concern about the U.S. trade deficit and the ability of U.S. businesses to compete in world markets, the Congress and the administration have acted to strengthen the links between U.S. industry and the nation's research and technology base. These actions include stimulating the transfer of technology from federal government-operated laboratories, which funded about $14.7 billion in research and development (R&D) in fiscal year 1989, to U.S. businesses. To support this goal, legislation over the past 10 years has authorized federal agencies to (1) grant exclusive patent licenses, (2) negotiate rights to intellectual property under a cooperative R&D agreement,[3] and (3) give federal inventors a share of any royalties from a licensed invention. This legislation has facilitated the commercialization of federal inventions; it has not addressed federal computer software--computer programs and supporting documentation--which currently cannot be copyrighted.

AGENCIES' EFFORTS TO COMPLY WITH THE PROHIBITION ON COPYRIGHTING

We found no evidence that federal agencies have improperly copyrighted computer software developed by federal workers. In a few limited cases, however, federal software distribution centers have used nonexclusive license agreements to restrict either (1) foreign access to the software or (2) customers' rights to further disseminate software unless customers obtain the center's prior permission. In general, these license agreements have been used for software that involved a large investment of federal resources and that may have had the greatest commercial utility.

With recent emphasis on transferring technology to the private sector, some federal laboratories have attempted to encourage U.S.

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[3]Intellectual property rights result from the physical manifestation of original thought.

businesses to collaborate with them, through cooperative R&D agreements, to further develop and commercialize certain software. But these initiatives are limited and scattered among agencies because of uncertainty about the extent of protection federal agencies can offer for jointly developed works and because of businesses' concern about whether this protection is sufficient for their investment in developing and marketing the software.

The prohibition on copyrighting government works does not, on its face, apply to works developed under federal contracts, grants, or cooperative agreements because the copyright law defines a "work of the U.S. government" as one prepared by an officer or employee of the federal government. The legislative history of the Act for the General Revision of the Copyright Law (P.L. 94-553) indicates that the decision on whether to allow copyrights in works produced under contracts, grants, or cooperative agreements should be left to the discretion of the contracting or granting agency.

COPYRIGHT LAW CONSTRAINS TRANSFER OF CERTAIN FEDERAL SOFTWARE

According to officials we talked with from seven federal agencies, making software generally available allows for the adequate dissemination of most of their agencies' software. They noted that their agencies primarily develop research-related software for specific scientific applications related to their missions. This software typically has little commercial application. According to officials at DOE and the Environmental Protection Agency, most of their research-related software is developed by contractors, who can request authority from the agencies to copyright commercially useful software.

However, senior officials from some agencies told us that their inability to copyright and exclusively license computer software has constrained the transfer and use of a certain portion

of software that has broader commercial applications. These agencies are the Department of Agriculture; the Department of Commerce; the Department of Defense, including Air Force, Army, and Navy; NASA; and the National Institutes of Health (NIH). Software constrained by the copyright prohibition includes, for example, artificial intelligence software that could assist doctors in diagnosing diseases or farmers in making decisions about irrigating, fertilizing, or spraying their crops. While these officials did not know exactly how much of their agencies' software was affected by the copyright prohibition, they indicated that it may be on the order of 10 percent.

As with commercializing inventions, businesses are generally unwilling to invest in documenting and developing commercial applications for federal software without having copyright protection. Two executives from businesses that have considered commercializing federal software noted that a business' return on investment is time-sensitive. To prevent competitors from marketing alternative software packages that are potentially less developed and less expensive, their companies would require copyright protection and exclusive rights to federal software.

According to officials at the five agencies concerned about copyright law, they cannot precisely determine the extent to which the government's inability to copyright has constrained their laboratories' efforts to transfer software because cases often do not come to their attention in the first place. For example, when a business knows that it cannot copyright government work, it does not seek to license the software or enter into a cooperative R&D agreement to further develop it. In other cases, senior laboratory administrators, technology transfer officials, and patent attorneys never learn of opportunities to transfer laboratory software. This occurs because preliminary negotiations between private and government representatives, which occur at lower levels within the

laboratory, fall apart early on because of the government's inability to protect intellectual property.

The transfer of software was constrained in several specific instances because a business could not protect it by a copyright. According to an NIH research manager, for example, the government's inability to copyright has constrained efforts to commercialize a computer program that would assist dermatologists in prescribing medications and other treatments for medical problems, such as acne. Because the software needed to be tested among larger groups of dermatologists before it could be marketed, NIH sought a business that would assume this responsibility.

An executive for a small business stated that his company was interested in the software, but it clearly was an early version that would have to be further developed before it could be marketed. His company decided not to try to commercialize the software in part because the company could not obtain copyright protection. The inability to copyright led to uncertainty over whether the business could sufficiently protect its investment from a competitor who could obtain the same software from NIH or NTIS. NIH has not further developed the software and has yet to attract a business partner to commercialize it.

Although NIH has signed about 130 cooperative R&D agreements, it is negotiating its first software agreement. Similarly, of the 140 agreements that the Agricultural Research Service has signed or is negotiating, none focus on software. The government's limited success in developing and commercializing software through cooperative R&D agreements is generally believed to be the result of copyright law's prohibition on copyrighting.

PROS AND CONS OF AMENDING COPYRIGHT LAW FOR FEDERAL COMPUTER SOFTWARE

According to senior officials at the five agencies concerned about the copyright law, to improve the transfer and use of federal software with commercial applications, the government should be allowed to copyright and exclusively license computer software, and federal researchers should be able to share in any royalties from licensed software. With such changes, businesses could protect their investment in developing and marketing the software, and federal researchers would have an incentive to work with businesses in developing and documenting the software.

These officials also noted that the authority to copyright and share royalties would provide federal computer programmers with opportunities for career, financial, and intellectual recognition similar to federal researchers whose inventions are patented. In addition, these authorities could improve public access to federal software because the software might not otherwise be sufficiently developed and documented for the laboratory to send it to NTIS for dissemination. Several agency and laboratory officials also noted that copyright authority would further their agencies' missions to improve public health and safety because they could better control the software's quality and distribution.

Some federal laboratory managers and researchers, however, oppose amending the copyright law. In their view, copyrighting and licensing federal computer software would (1) distract researchers from the laboratory's basic research mission, (2) interfere with informal exchanges among federal and university scientists, and (3) interfere with the government's existing policy of publicly disseminating technical information. In addition, Information Industry Association representatives oppose allowing federal agencies to copyright computer software because agencies might use this authority to either restrict access or give favored access to

federal scientific and demographic databases, such as those at NIH's Library of Medicine or the U.S. Census Bureau.

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In summary, we found no evidence that federal agencies are improperly copyrighting software developed by federal employees. Furthermore, federal software is generally available to the public. However, perhaps up to 10 percent of the software that federal agencies develop may not be effectively transferred and used because of the copyright prohibition. This software may have significant commercial applications with potentially important technological and economic benefits to our nation.

Effective transfer of this software is an appropriate goal that could be achieved by amending the copyright law to provide copyright and exclusive licensing authority. Such a fundamental change, however, must be balanced against the concern that it might reduce the public's access to federal databases and shift the federal laboratories' basic research mission.

To accommodate these concerns and still achieve effective transfer, it may be appropriate to extend copyright authority only to software that has potential commercial applications. This could be accomplished through various options. One might be to amend copyright law (17 U.S.C. 105) to allow federal agencies to copyright and exclusively license computer software case-by-case if such protection would both (1) stimulate the software's effective transfer and use and (2) facilitate public access to the software. Alternatively, the Federal Technology Transfer Act could be amended to authorize federal agencies to copyright and exclusively license federal computer software under a cooperative R&D agreement (15 U.S.C. 3710a). In this case, the software could only be copyrighted if a collaborator was willing to further develop and commercialize the software.

Under either option, consideration should be given to instituting procedures to ensure fairness in granting an exclusive license to a nonfederal entity. For example, if 17 U.S.C. 105 were amended, it would be appropriate to include procedures similar to those required for granting patent licenses (35 U.S.C. 209). In addition, consideration should also be given to amending the royalty-sharing section of the Federal Technology Transfer Act (15 U.S.C. 3710c) to allow federal employees who develop computer software that is subsequently commercialized to share in royalties.

Mr. Chairman, this concludes my remarks. I would be happy to respond to any questions you or other Members of the Subcommittee may have.